DOCUMENT RESUME

ED 170 271 SP 014 195

AUTHOR Lubin, Ellen
TITLE Motor Creativity of Preschool Deaf Children.
PUB DATE Mar 79
NOTE 15p.; Paper presented to the Annual Meeting of the American Alliance for Health, Physical Education and Recreation (New Orleans, Louisiana, March 17, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Creativity Research; *Deaf Children; *Motor Development; Movement Education; *Perceptual Motor Learning; *Preschool Education; Psychomotor Skills
IDENTIFIERS *London Trestle Tree Apparatus

ABSTRACT

This investigation seeks to provide information on the motor creativity of preschool deaf children. A play apparatus known as the London Trestle Tree Apparatus was used. Data were collected on motor creativity using the Torrance Test of Thinking Creatively in Action and Movement. The Lubin Motor Creativity Testing Protocol was used to test motor fluency and originality. Findings indicated that children exposed to twenty days of guided movement exploration on the London Trestle Tree improved significantly over a control group in motor creativity as measured by the Torrance Test. Motor creativity as measured by the Lubin Motor Creativity Testing Protocol showed no significant increase over the control group. The implications for teaching methodology to be used with preschool deaf children are discussed, and the different results obtained from the two testing methods used are analyzed. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED170271

"Motor Creativity of Preschool Deaf Children" by Dr. Ellen Lubin. Paper presented to the National American Alliance for Health, Physical Education and Recreation, New Orleans, La., 17 March 1979.

The present investigation entailed a study of the changes in motor creativity of twenty-four preschool deaf children, three to five years old, on a novel piece of play apparatus, the London Trestle Tree Apparatus. After initial pretest motor creativity data were ascertained on all children through use of videotape equipment, twelve children from both the Callier and Tarrant County schools were given a four week period of guided movement exploration using the I CAN associated action words. The other twelve children served as a control group participating in the playtime on the apparatus without the benefit of adult guidance or instruction. Data were collected on motor creativity using the Torrance Test of Thinking Creatively in Action and Movement and on motor fluency and motor originality using the Lubin Motor Creativity Testing Protocol (derived from the Sherrill-Rowe-Lubin adaptation of Wyrick's Motor Creativity Test).

Subjects

Twenty-four preschool deaf children, ages three to five, from the Callier Center for Communication Disorders in Dallas, Texas and the Tarrant County Day School for the Deaf in Fort Worth, Texas, provided data for the study. Each school provided a control and experimental group for the study, so that statistical analyses comparing schools entailed a study of four groups, each comprised of six subjects.

For comparison of treatments, however, the four groups were reduced to two, a control group and an experimental group. The two groups were fairly well matched, as indicated on the table, with respect to the factors which might have influenced motor creativity. Because of the small number of preschool deaf children available for use as subjects, intentional exact matching was not possible.

SP014195

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Dr. Ellen Lubin

Tests

Since a widely recognized test of creativity was needed for use in this study, the Torrance Test of Thinking Creatively in Action and Movement was selected. Torrance, an expert in the field of Creative Behavior, suggested and encouraged the investigator to use his original test for evaluating the creative thinking abilities of young preschool children in movement because it had not been used previously with deaf children. Torrance indicated a total creativity test-retest reliability coefficient to be .84 on twenty nonhandicapped children. This investigation, using an analysis of variance technique, found the test-retest reliability coefficient for the original thirty-four children to be .93, a high positive correlation. The Torrance test yielded fluency, originality, and imagination scores and total creativity score using four activities in which children respond through movement.

The Lubin Motor Creativity Testing Protocol was developed through a pilot study conducted by the investigator on nonhandicapped preschool children. This pilot study yielded the components of motor fluency and motor originality as measures of motor creativity. Motor fluency, in this study, was the number of purposeful contacts made with the London Trestle Tree Apparatus during the pre and post videotapings of five minute duration. Motor originality was the uniqueness of movement responses to the London Trestle Tree Apparatus. The reliability coefficients from an analysis of variance method on the original twenty children of the Callier group for motor fluency and motor originality were .92 and .86 respectively. Interrater objectivity, determined by a Pearson Product Moment Correlation on the original sample of thirty-four subjects, was found to be .99 for motor fluency and .92 for motor originality.

Orientation of the Subjects

With the purpose of familiarizing the children with the I CAN action words to be used during the experimental period, a two day orientation was conducted for fifteen minutes each day prior to the pretest videotaping. The orientation consisted of the use of the I CAN action words in a variety of movement patterns without apparatus and within the confines of the classroom. Children were grouped for this orientation by regular classes so as not to disturb the daily routine.

The subjects were then randomly assigned to triads for the pretest videotaping. Prior to the pretest videotaping, the triads were randomly assigned to experimental and control groups for the ensuing experimental period.

Collection of the Torrance Data

All preschoolers were individually tested by the investigator and classroom teacher on the Torrance Test of Thinking Creatively in Action and Movement at the beginning and end of the experimental period on the same days as the film data were collected. The use of the classroom teacher to aid in the testing session was only to ascertain that the questions were asked in familiar language (total communication) to the children.

The Torrance test consists of four sets of activities: (1) How Many Ways? - designed to sample the child's ability to produce alternative ways of moving; (2) Can You Move Like? - designed to sample the child's ability to imagine, emphasize, fantasize, and assume unaccustomed roles; (3) What Other Ways? - designed to sample alternative ways of putting a cup in a wastebasket; and (4) What Can You Do? - designed to sample unusual uses of paper cups (Torrance, 1976). Activities 1, 3, and 4 are scored on motor fluency and originality; activity 2 is scored only on imagination. A total

fluency score, originality score, and imagination score is attained, and a total composite score of all three is also achieved.

In Activity 1, the fluency score is the number of different ways and combinations of ways of moving from one point to another in a testing room. In Activity 3, the fluency score is the number of different ways the child gives for getting the paper cups into the wastebasket. In Activity 4, the fluency score is the number of different uses given for paper cups (Torrance, 1976).

The imagination score is based totally on activity 2, Can you move like? This activity is scored on the imagination characteristic with 1 to 5 points assigned according to the degree of effort put forth in the enactment the situation. One point is given when the child does not move. Two points are given when the action is inadequate, but without interpretation. Three points are awarded when the enactment is adequate, but without interpretation. Four points are given when the action shows some imagination. Five points are awarded for actions that tell a story beyond the assigned role. In contrast to the other three activities, the majority of the children were able to respond in some manner to the questions posed in Activity 2. Of all four activities, this particular one was the easiest for the deaf preschoolers. The questions asked in this activity required responses that were of a familiar and concrete nature since the imitation of animal movements is a common practice in non-handicapped and handicapped early childhood curriculums. The major problem experienced by the deaf children on the other three activities may have resulted from difficulty in understanding the concepts posed, thus enabling them to respond only in familiar and common ways. A possible reason for the low scores on the fluency and originality measure may be attributed to the lack of opportunity for creative expression within the confines of a highly

structured preschool deaf curriculum. This curriculum which focuses specifically on the acquisition of language is centered in its early stages on concrete representation through total communication. High priorities are therefore placed on imitative behavior as a means of learning appropriate communication patterns. Subsequently, this imitative behavior is carried over to all areas in the preschool curriculum.

Collection of Videotape Film Data

The children were filmed in social play groups of three (triads) while moving on the London Trestle Tree Apparatus for a five minute duration in a room 12 feet by 30 feet in size. The placement of the ten pieces comprising the London Trestle Tree Apparatus is illustrated in Figure 1.

The children were told using total communication that they could play on anything they wanted to, and then were signed to "go play". No instructions were given to the children during the filming. The investigator acted as a spotter and assisted the children who asked or seemed to need help in order to prevent possible injury.

Analysis of the Film Data

The resulting videotapes were viewed on a 12-inch TV monitor by two raters who independently recorded the motor creativity data by marking the frequency of occurrence (motor fluency) and uniqueness of motor responses (motor originality) on preconstructed individual motor fluency and motor originality score sheets. Interrater objectivity was found to be .99 for motor fluency and .92 for motor originality. Test-retest reliability measures were also computed. Reliability coefficients for motor fluency and motor originality were .92 and .86 respectively.

A multiple regression analysis was used in attempting to validate the Lubin Motor Creativity Testing Protocol. The procedure determined the relationship between the predictor variables (motor fluency and motor originality scores) and a criterion variable (Torrance creativity scores). The correlation between the two sets of data was .33. This finding suggests that the Torrance test measures something different from the Lubin Motor Creativity Testing Protocol. Spearman Rank Order Correlations were subsequently computed on the fluency scores from the criterion and original tests and the motor originality scores from the criterion and original tests. The correlations for both motor fluency and motor originality were .28 and .29 respectively. It was concluded that the Torrance test was not an appropriate criterion test for determining the validity of the Lubin Motor Creativity Testing Protocol.

Conducting the Experimental Period

Guided movement exploration for fifteen minutes per day, per triad, five days per week for four weeks using the I CAN associated action words was planned and executed as the independent variable. Total communication was used in all sessions with the children. In order to minimize the possibility of order effects, the arrangement of the London Trestle Tree Apparatus was changed every two days.

Specific action words used in the guided movement exploration sessions were selected prior to the experimental period by developing a tentative four week master plan. These I CAN action words were selected from a major list of all I CAN action word clusters (Wessel, 1976) because they referred specifically to: (1) body parts, body actions and movements, size, shape and time, and direction; (2) were appropriate to preschool age children; and (3) were appropriate to the type of climbing apparatus used in the experimental period.

The control group was supervised by the investigator for the same period of time while they played on the apparatus with no adult guidance or instruction given.

Treatment of the Data

Analysis of covariance was the major statistical procedure used. The Torrance Creativity data and the motor fluency and motor originality data from the Lubin Motor Creativity Testing Protocol were treated by univariate factorial analysis of covariance to determine any significant differences between experimental and control groups and any significant interaction between the effects of group by school at the .05 level of significance. The motor creativity data derived from the Lubin Motor Creativity Testing Protocol were treated by a multivariate factorial analysis of covariance to determine any significant differences between experimental and control groups and any significant differences between experimental and control groups and any significant interaction between the effects of group by school also at the .05 level of significance. Table 1.

Results

On the basis of the findings of this study, only one null hypothesis was rejected at the .05 level of significance. (1) There is no significant difference between control and experimental groups on the Torrance Creativity measure. This finding indicates that the experimental period of guided movement exploration on the London Trestle Tree Apparatus did produce significant differences (increase in scores) over the control setting of free play on the apparatus with no adult guidance or instruction. Figure 1 presents a graphic description of the significant differences between the experimental and control groups over schools for the Torrance creativity scores. The adjusted mean posttest scores for the experimental group are approximately fourteen points greater than those of the control group.

TABLE 1

UNIVARIATE FACTORIAL ANALYSIS OF COVARIANCE
FOR THE TORRANCE CREATIVITY SCORES
(n=24)

Source	df	SS	MS	F
Rows (schools)	1	98.12	98.12	.48
Columns (treatment)	1	985.32	985.32	4.81*
Interaction	1	0.02	0.02	.00
Within (error)	19	3891.09	204.79	
Total	22	4974.55		

*$F_{.05(1,19)}=4.38$

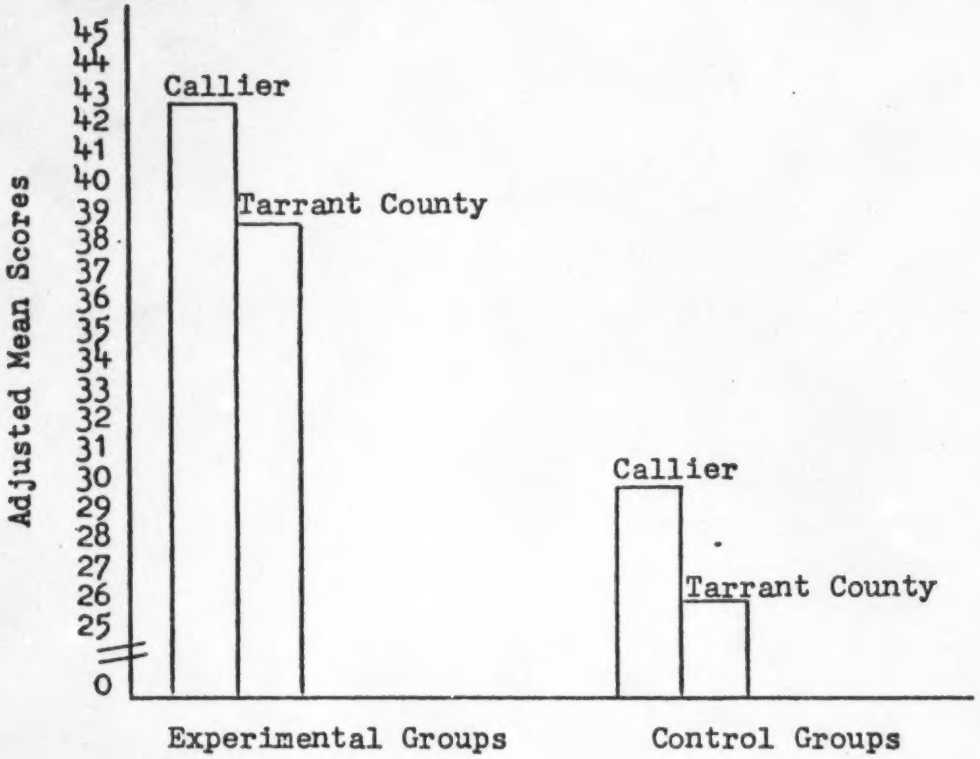

Fig. 1. Posttest Differences of Experimental Group Over Control Group on the Torrance Creativity Test

The other hypotheses pertaining to significant differences between groups and the interaction between the effects of group by school for motor fluency, motor originality, and motor creativity were not rejected. That is, no significant differences were indicated. The experimental and control groups scored similarly on the motor fluency, motor originality, and motor creativity measures after the four week experimental period as did the two schools. These findings suggest that the children were not significantly more fluent, original, and thus creative in their movement responses to the London Trestle Tree Apparatus as a result of the guided movement experimental period than the group that received no instruction.

Conclusion

It can be concluded from the findings that preschool deaf children exposed to twenty days of guided movement exploration on the London Trestle Tree Apparatus will improve significantly over a control group in motor creativity as measured by the Torrance Test of Thinking Creatively in Action and Movement but will show no significant increase over a control group in motor creativity as measured by the Lubin Motor Creativity Testing Protocol.

Discussion

The purpose of this investigation was to provide information on the motor creativity of preschool deaf children. Two findings resulted which have implications for teaching methodology to be used with preschool deaf children. The first was the success of the London Trestle Tree Apparatus as a teaching device for stimulating guided movement experiences and for increasing creativity as measured by the Torrance Test of Thinking Creatively in Action and Movement. The second was the duration of time needed to evoke changes in creativity as measured by the Torrance Test of Thinking Creatively in Action and Movement.

It was found that four weeks, fifteen minutes per day, for each triad of deaf children was a sufficient duration of time. These changes appeared to be the result of the combination of the guided movement exploration using total communication, the apparatus arrangement, and the I CAN associated action words. This combination can therefore be recommended for use in stimulating the motor creativity of young deaf children.

The results of this investigation demonstrated that the Torrance Test and Lubin Protocol measured different aspects of creativity. Though significant increases were noted in the properties as measured by the Torrance Test after the experimental period, no significant differences were indicated in the properties as measured by the Lubin Protocol.

The strength of the Lubin Motor Creativity Testing Protocol lies in its ability to determine motor fluency and motor originality scores on initial exposure to a novel piece of apparatus, the London Trestle Tree Apparatus. The major weakness of the Lubin Protocol, conversely, was its dependence on a specific apparatus arrangement. This dependence made it difficult to ascertain positive changes in motor fluency and motor originality after the experimental period because of the decreased novelty of the initial apparatus arrangement. A second weakness of the Lubin Protocol was the inability to establish acceptable statistical validity. Since the Torrance Test and Lubin Protocol appear to measure different properties of creativity, the Torrance Test was not an appropriate criterion measure for use in validating the Lubin Protocol.

Although differences between schools were not studied as part of this investigation, it is interesting to note that no significant differences were found. This appears to indicate that the findings of this study were upheld in both of the two replications.

Recommendations for Further Studies

The investigator recommends the following studies to be undertaken:

1. A study similar to this investigation comparing deaf children of various ages to ascertain if creativity is enhanced or stifled as deaf children grow.

2. A study to compare different arrangements of the London Trestle Tree Apparatus with respect to changes produced in creativity of deaf children.

3. A study similar to this one comparing the motor abilities of deaf children on pre and post measures with their motor creativity on pre and post measures.

4. A study comparing the Torrance creativity scores of deaf children in an experimental period of guided movement exploration with and without novel apparatus.

REFERENCES

Alston, Dorothy. "A Comparison of Motor Creativity with Verbal Creativity and Figural Creativity of Black Culturally Deprived Children." Ph.D. dissertation, University of North Carolina, 1971.

Beveridge, Sandy K. "The Relationship Among Motor Creativity, Movement Satisfaction, and the Utilization of Certain Movement Factors of Second Grade Children." Ph.D. dissertation, Ohio State University, 1973.

Costello, M. R. "A Study of Speechreading as a Developing Language Process in Deaf and Hard of Hearing Children." Doctoral dissertation, Northwestern University, Evanston, 1957.

Darbyshire, J. "Play Patterns of Young Children with Impaired Hearing." Volta Review 79, 1977, 19-26.

Gallagher, M. "A Comparative Study of the Most Creative and Least Creative Students in Grades 4-8 at the Boston School for the Deaf, Randolph, Massachusetts." Doctoral dissertation, Boston College, 1968.

Kephart, Newell. The Slow Learner in the Classroom. Columbus, Ohio: Charles C. Merrill Publishing Company, 1962.

Kretschmer, R. A Study to Assess Play Activity and Gestural Output of Hearing Handicapped Preschool Children. Bethesda, MD: ERIC Document Reproduction Service, ED 071-247, 1972.

Lay John W. and Ingram, Alan G. "Play, Games and Sport in Psychosociological Development of Children and Youth." Physical Activity: Human Growth and Development, ed. by G. Lawrence Rarick. New York: Academic Press, 1973, 257-298.

Lowenfeld, Viktor. Creative and Mental Growth. New York: Macmillan Publishing Company, 1975.

Lubin, E. and Sherrill, C. "Motor Creativity of Mainstream Preschool Children on the Trestle Tree Apparatus." Paper presented to the American Alliance of Health, Physical Education and Recreation National Convention, Kansas City, MO, 8 April 1978.

McDermott, Elizabeth. "Free Play--A Pleasurable Experience." Volta Review 72 (December 1970): 541-543.

Myklebust, H. The Psychology of Deafness. New York: Guine and Stratton, 1960.

Phillip, J. "Comparison of Motor Creativity with Figural and Verbal Creativity and Selected Motor Skills." Research Quarterly 40, 1969, 164-166.

Rogers, T. "The Role of Education in the Development of Creative Abilities of Deaf and Hearing Children Ages Five and Eleven." Texas Journal of Audiology and Speech Pathology, 1976, 8-10.

Sherrill, Claudine. Adapted Physical Education and Recreation. Iowa: William C. Brown Company, 1976.

Silver, R. "The Question of Imagination, Originality, and Abstract Thinking by Deaf Children." American Annals of the Deaf 122, 1977, 349-354.

Tanner, Patricia. "The Relationship of Selection Measures of Body Image and Movement Concepts to Two Types of Programs of Physical Education in the Elementary Grades." Ph.D. dissertation, Ohio State University, 1969.

Templin, M. The Development of Reasoning In Children with Normal and Defective Hearing. Minnesota: University of Minnesota Press, 1950.

Torrance, E. P. "Thinking Creatively in Action and Movement." Georgia Studies of Creative Behavior, University of Georgia, 1976.

Vernon, McCay and Fain, Gerald S. "Recreation and the Unique Problems of Early Profound Deafness." Therapeutic Recreation Journal 9, 3 (Third Quarter, 1975): 83-88.

Warburton, Starla. "Play Now, Paid Later." American Annals of the Deaf 118 (October 1973): 589-591.

Wessel, J. Associated Skills (Action Word Clusters). Michigan: Michigan State University, Field Service Unit on Physical Education and Recreation for the Handicapped, 1976-1977.

Wyrick, W. "Comparison of Motor Creativity with Verbal Creativity, Motor Ability, and Intelligence." (Doctoral dissertation, University of Texas at Austin, 1966).